

A rear view of the Napier Dagger VIII showing the revised arrangement of accessories and the supercharger casing.

page. These apply to the engine as operated on fuel of 87 octane number.

Several design improvements have been introduced, such as a larger double-entry supercharger, increased cooling fin area, complete ignition screening, provision for a De Havilland constant-speed airscrew, S.U. carburettor with automatic mixture control and an electric starter. Nose cowl and air chutes of standardised type are now included with each engine. This feature relieves the aircraft designer of the responsibility of arranging for the cooling of the engine.

Drastic rearrangement of accessories has enabled the engine to be presented in a more compact form and some 7in. in overall length have been saved.

As the engine gives its maximum power at 8,750ft. it is known as an intermediate altitude type, being rated at a greater height than medium supercharged engines and rather lower than fully supercharged models.

A notable feature in comparison with the earlier Dagger III is the raising of the line of the airscrew shaft.

MAKERS: D. Napier and Sons, Ltd., Acton, London, W.3.

POBJOY

BEST known of the Pobjoy models, the Niagara III is a seven-cylinder air-cooled radial of 2,835 litres capacity and with a rated output of 88 h.p. at 3,300 r.p.m.

The cylinders have steel barrels screwed into die-cast aluminium heads. Pistons are of the duralumin slipper type with two compression and one scraper ring. The crankcase is in four sections; all the castings are of aluminium alloy. Valve gear is completely enclosed in oil-tight cast aluminium casings.

A feature of special interest is the cowling, which is supplied as an integral part of the engine and which ensures efficient cooling without interfering with accessibility.

The Niagara V—a later and more powerful engine—is remarkable for its increased output as compared with the Niagara III. Although of approximately the same size and weight as the earlier type the continuous cruising power is rather better than the maximum output of the Series III engine.

Photographs of the latest Niagara V are not available, but it may be said that the engine has been entirely redesigned by Mr. Towler and that in its present form it differs very considerably from that evolved last year by Mr. Pobjoy.

The new Niagara V will not be put on the market until it has undergone several hundreds of hours of intensive test work on the bench and in the air.

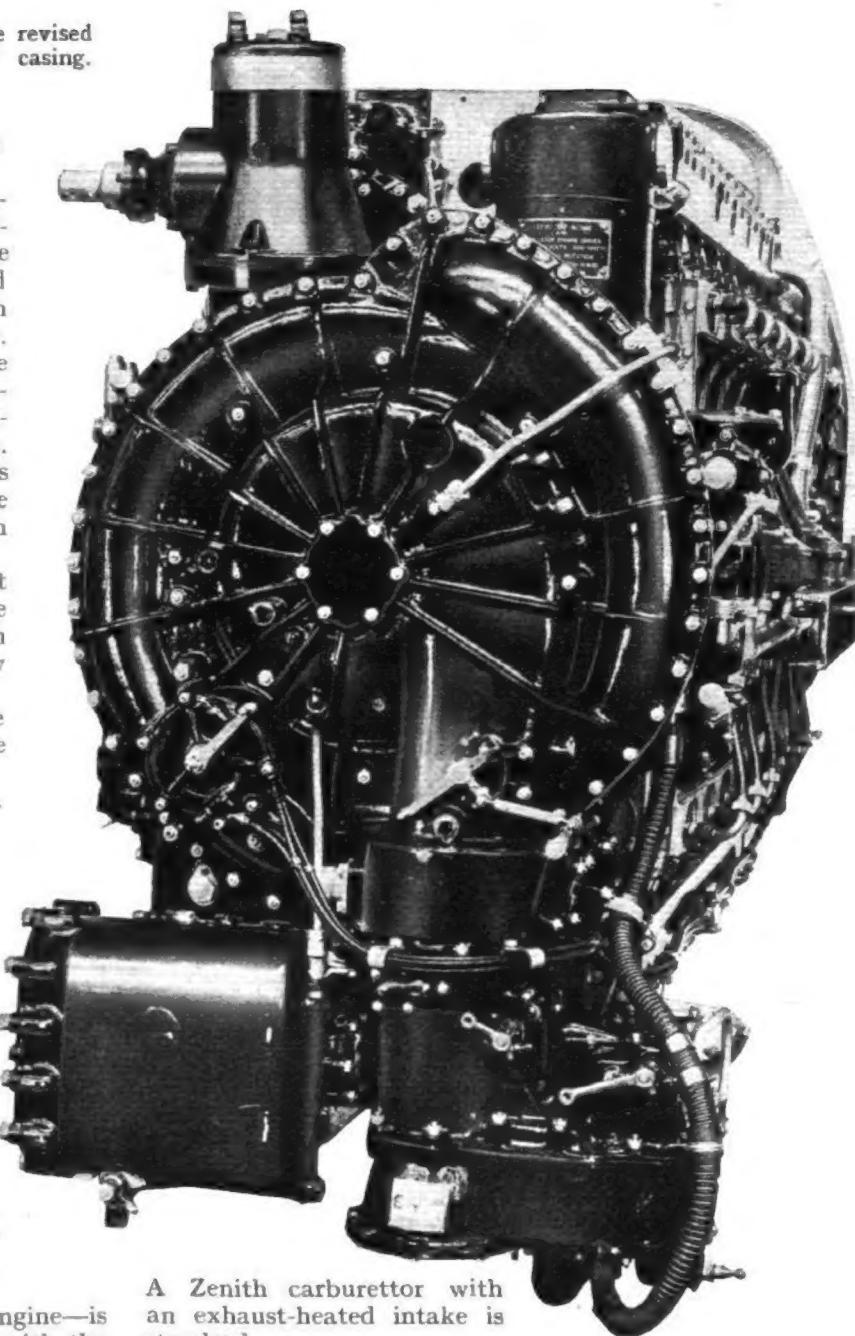
Apart from the Niagara V data published in the table on p 390, the following figures may be of interest: Fuel consumption at maximum power, 9.5 gal./hr.; fuel consumption at economical cruising output (90 h.p.), 5.4 gal./hr.; oil consumption, 1 to 2 pt./hr.

MAKERS: Pobjoy Airmotors and Aircraft, Ltd., Rochester, Kent.

J.A.P.

PRIMARILY for use in machines manufactured by the Aeronautical Corporation of Great Britain, Ltd., J. A. Prestwich and Co., Ltd., are building a horizontally opposed twin with a normal output of 34 h.p. at 2,400 r.p.m. The big ends and main bearings have ball and roller races and the rockers for the two valves in each head run on rollers.

Oil is taken from a separate finned portion of the crankcase by a double-gear type scavenging and pressure pump.



A Zenith carburettor with an exhaust-heated intake is standard.

MAKERS: J. A. Prestwich and Co., Ltd., Northumberland Park, Tottenham, London, N.17.

ROLLS-ROYCE

ALTHOUGH the Kestrel series is still in demand (and has, in fact, been developed to a very high pitch) the name of Rolls-Royce is now chiefly associated with the larger and more powerful Merlin which is installed in some of our most efficient fighting and bombing aircraft.

The Merlin is a geared twelve-cylinder vee type with a capacity of 27 litres, which is 27 per cent. greater than that of the Kestrel series.

Up to the moment the majority of Merlins produced have been of the fully supercharged type—chiefly Merlin IIIs—but more recently a new model with a two-speed supercharger (Merlin X) has been evolved and will be installed in the latest type of Armstrong Whitworth Whitley bomber. There is also the Merlin VIII with a medium-altitude supercharger, but figures for this type are not yet available.

The Merlin III, now being introduced into the R.A.F. in succession to the Merlins I and II, is actually the same engine as the Merlin II, but embodies a standardised airscrew shaft to take either the De Havilland or Rotol variable-pitch airscrews. Another modification is the provision of a dual drive for accessories at the front end. The Merlin IV is also virtually the same engine but, apart from the modifications incorporated in the Merlin III, it is cooled by water under pressure instead of by Glycol. This has the effect of raising the boiling point of the water